solving problems. There were also many courses offered regarding the use of the Internet to support the curriculum. Annually, in the spring, all teaching staff take the Technology Self-Assessment (Appendix B). In this way, staff members check their "tech pulse" and make plans for new learning.

APPENDIX A District Technology Committee Members

2008-2009 District Technology Committee

Mrs. Diane Anderson	Media Specialist
Mr. Robert Brooks	Principal – Tomlinson Middle
Mr. Timothy Emery	Board of Education
Dr. Garcia-McDonnell	Board of Education
Mr. Sean Kashawlic	Director of Technology
Mr. Tim Leighton	Computer Teacher– Robichaud HS
Mrs. Sherry Lynem	Business Manager
Mr. Francis McCauley	Asst. Principal–Robichaud HS
Mr. Roderick Means	Board of Education
Dr. Ernando Minghine	Superintendent
Mrs. Maureen Molloy	Principal – Thorne Primary
Mr. Doug Mott	Network Administrator
Mrs. Jean Schoenberger	Principal – Thorne Intermediate
Mrs. Leslie Simmons	Curriculum Director
Mr. Gregory Stephens	Board of Education
Mr. Dave Stull	Director of Operations
Mr. Glen Taylor	Director – Cyber High School

APPENDIX B: Yearly Self-Evaluation Rubrics

Westwood Community Schools

Student Use of Technology
Self-Evaluation

Students: Please check the level which best describes what you can do at the present time.

1. Basic Computer Use
___Level 1 - I do not use a computer.
___Level 2 - I log-on, log-off, open, use and close a program on my own.
___Level 3 - I open and use more than one program at the same time.
___Level 4 - I learn new programs on my own.

2. File Management
___Level 1 - I do not save any documents I create using the computer.
___Level 2 - I select, open and save documents on different drives.
___Level 3 - I create my own folders to keep files organized.
___Level 4 - I move files between folders and drives.

3. Word Processing
___Level 1 - I do not use a word processor.
___Level 2 - I use a word processor for basic writing tasks.
___Level 3 - I use the tools of the word processor, such as spell check and grammar check to edit my work.
___Level 4 - I use the word processor to improve my previous drafts and publish a final document.

4. Spreadsheet
___Level 1 - I do not use a spreadsheet.
___Level 2 - I enter data in a spreadsheet and create charts.
___Level 3 - I choose a chart which best reflects my data and apply title and

labels.
___Level 4 - I use formulas to help analyze data in a spreadsheet.

5. Database
___Level 1 - I do not use a database.
___Level 2 - I locate information from a pre-made database such as Library Search and electronic magazine sources.
___Level 3 - I create my own database and add or delete information.
___Level 4 - I generate reports from a database in order to answer questions.

6. Graphics
___Level 1 - I do not use graphics with my word processing pieces.
___Level 2 - I create pictures with painting and drawing programs and use clip art.
___Level 3 - I edit clip art, scan and import graphics from a variety of sources and modify them using a graphic editor.
___Level 4 - I invent, select and use graphics in order to make a point or illustrate what I have learned.

7. E-mail
___ Level 1 - I do not use e-mail.
___ Level 2 - I compose and send e-mail messages within the school district.
___ Level 3 - I organize my mail folders to save messages and delete those I no longer need.
___ Level 4 - I use e-mail to request and send information for research.

8. Research / Information-Searching
___Level 1 - I do not use electronic sources to find information.
___Level 2 - I find information from electronic sources (Encarta, Internet, CDs).
___Level 3 - I select, gather, and save information from multiple electronic sources to answer a question.
___Level 4 - I analyze and evaluate the information I've gathered.

9. Desktop Publishing
___Level 1 - I do not use a publishing program.
___Level 2 - I use templates or wizards to create a published document.
___Level 3 - I create original publications from a blank page combining design elements such as columns, clip art, tables, word art, and captions.
___Level 4 - I design original publications that communicate to others what I've learned.

10. Technology Presentation
___Level 1 - I do not use technology for presentations.
___Level 2 - I use templates or wizards to create multimedia presentations.
___Level 3 - I combine text with pictures imported from different sources, to create original multimedia presentations.
___Level 4 - I design multimedia presentations employing audio, video and still graphics to share ideas.

11. Internet
___Level 1 - I do not use the Internet.
___Level 2 - I visit Internet sites selected by my teacher and use navigation buttons to move between pages.
___Level 3 - I use search tools efficiently to locate information.
___Level 4 - I create web pages for classroom projects.

12. Responsible Use
___Level 1 - I do not understand what responsible use means.
___Level 2 - I take care of the equipment and leave it ready for the next user.
___Level 3 - I understand and follow District rules concerning harassment, language, passwords, copyright, privacy, appropriate use of resources, etc.
___Level 4 - I model responsible use and teach others.

This form was developed by the Technology department and the media specialists of the Westwood Community School District who based it upon the Michigan Framework to measure the growth of student technology skills.

WESTWOOD COMMUNITY SCHOOLS

Westwood Community Schools

Staff Use of Technology
Self-Evaluation

Please judge your level of achievement in each of the following competencies. Circle the number which best reflects your current level of skill attainment. (Be honest, but be kind.) This tool is designed to help understand your current level of skills with computer technologies and to plan for professional development.

1. Basic Computer Use
___Level 1 - I do not use a computer.
___Level 2 - I use the computer to run a few specific, pre-loaded programs.
___Level 3 - I run two programs simultaneously, and have several windows open at the same time.
___Level 4 - I trouble-shoot successfully when basic problems with my computer or printer occur. I learn new programs on my own. I teach basic operations to my students.

2. File Management
___Level 1 - I do not save any documents I create using the computer.
___Level 2 - I select, open and save documents on different drives.
___Level 3 - I create my own folders to keep files organized and understand the importance of a back-up system.
___Level 4 - I move files between folders and drives, and I maintain my network storage size within acceptable limits. I teach students how to save and organize their files.

3. Word Processing
___Level 1 - I do not use a word processing program.
___Level 2 - I occasionally use a word processing program for simple documents. I generally find it easier to hand write most written work I do.
___Level 3 - I use a word processing program for nearly all my written professional work: memos, tests, worksheets, and home communication. I edit, spell-check, and change the format of a document.

___Level 4 - I teach students to use word processing programs for their written communication.

4. Spreadsheet
___Level 1 - I do not use a spreadsheet.
___Level 2 - I understand the use of a spreadsheet and can navigate within one. I create simple spreadsheets and charts.
___Level 3 - I use spreadsheets for a variety of record-keeping tasks. I use labels, formulas, cell references and formatting tools in my spreadsheets. I choose charts that best represent my data.
___Level 4 - I teach students to use spreadsheets to improve their own data keeping and analysis skills.

5. Database
___Level 1 - I do not use a database.
___Level 2 - I understand the use of a database and locate information from a pre-made database such as Library Search.
___Level 3 - I create my own databases. I define the fields and choose a layout to organize information I have gathered. I use my database to answer questions about my information.
___Level 4 - I teach students to create and use databases to organize and analyze data.

6. Graphics
___Level 1 - I do not use graphics with my word processing or presentations.
___Level 2 - I open, create, and place simple pictures into documents using drawing programs or clipart.
___Level 3 - I edit and create graphics, placing them in documents in order to help clarify or amplify my message.
___Level 4 - I promote student interpretation and display of visual data using a variety of tools and programs.

7. E-mail
___Level 1 - I have an e-mail account but rarely use it.
___Level 2 - I send messages using e-mail – mostly to district colleagues, friends, and family. I check my e-mail account on a regular basis and maintain my mail folders in an organized manner.
___Level 3 - I incorporate e-mail use into classroom activities. I use e-mail to access information from outside sources.
___Level 4 - I use e-mail to request and send information for research.

8. Research/Information-Searching
___Level 1 - I am unlikely to seek information when it is in electronic formats.
___Level 2 - I conduct simple searches with the electronic encyclopedia and library software for major topics.
___Level 3 - I have learned how to use a variety of search strategies on several

information programs, including the use of Boolean (and, or, not) searches to help target the search.

___Level 4 - I have incorporated logical search strategies into my work with students, showing them the power of such searches with various electronic sources to locate information that relates to their questions.

9. Desktop Publishing

___Level 1 - I do not use a publishing program.

___Level 2 - I use templates or wizards to create a published document.

___Level 3 - I create original publications from a blank page combining design elements such as columns, clip art, tables, word art, and captions.

___Level 4 - I design original publications that communicate to others what I've learned.

10. Video Production

___Level 1 - I do not use a video camera.

___Level 2 - I create original videos for home or school projects.

___Level 3 - I create original videos using editing equipment.

___Level 4 - I use computer programs to edit video presentations and I teach my students to create and edit videos.

11. Technology Presentation

___Level 1 - I do not use computer presentation programs.

___Level 2 - I present my information to classes or groups in a single application program such as a word processor, a spreadsheet, or a publishing program.

___Level 3 - I present my information and teach my class using presentation programs such as Powerpoint or SuperLink, incorporating various multimedia elements such as sound, video clips, and graphics.

___Level 4 -I teach my students how to use presentation software. I facilitate my students' use of a variety of applications to persuasively present their research concerning a problem or area of focus in their learning.

12. Internet

___Level 1 - I do not use the Internet.

___Level 2 - I access school and district websites to find information. I follow links from these sites to various Internet resources.

___Level 3 - I use lists of Internet resources and make profitable use of Web search engines to explore educational resources.

___Level 4 - I contribute to my school or district websites. I teach students how to effectively use the resources available on the Internet.

13. Responsible Use/Ethics

___Level 1 - I am not aware of any ethical issues surrounding computer use.

___Level 2 - I know that some copyright restrictions apply to computer software.
___Level 3 - I understand district rules concerning student and adult use of e-mail and internet. I know the programs for which the district or my building holds a site license. I understand the school board policy on the use of copyrighted materials.
___Level 4 - I model ethical use of all software and let my students know my personal stand on this issue.

14. Technology Integration
___Level 1 - I do not blend the use of computer-based technologies into my classroom learning activities.
___Level 2 - I understand the district technology plan supports integration of technology into classroom activities, but I am still learning about what strategies will work and how to do it. I accept student work produced electronically, but do not require it.
___Level 3 - From time to time, I encourage my students to employ computer-based technologies to support the communicating, data analysis and problem solving outlined in the district technology plan.
___Level 4 - I frequently model and teach my students to employ computer-based technologies for communication, data analysis, and problem-solving as outlined in the district technology plan.

APPENDIX C Sample Student Performance Assessment Materials

5th Grade Technology Performance Assessment

Research Task - National Parks

You are starting a new travel agency. Your first clients want to travel to a national park this summer where their family can have recreation while learning more about part of the United States. Your task is to choose the national park which will provide this family with the vacation of a lifetime so they will recommend your travel agency to their friends and relatives. Travel to and from the park is not a concern; the family wants you to focus on making a recommendation for the best park for them to visit. You have narrowed the choices down to three parks:

- The Grand Canyon National Park
- Yellowstone National Park
- Yosemite National Park

Your task is to make a proposal to the family for a trip to ONE of the parks. You should give details of the sights, facilities, educational and recreational opportunities. You may include pictures and other information from your research. You will use PowerPoint to make your presentation and try to convince the family that they should go to the park you propose.

Your PowerPoint presentation must include at least one chart showing data you have collected on either the weather, the number of visitors, or the miles of hiking trails. You must include an explanation of what the data means and why you have included it.

The family includes: two adults, one eleven-year-old and one fourteen-year-old.

Student Directions for National Parks Task

Start Microsoft Word. Open the file named note-taking grid.doc to take notes in during your research. Notes should be written in short phrases or words, not complete sentences. You will use this information to help you make your PowerPoint presentation.

Start Internet Explorer. Click on File/Open and find your team folder. Open the file Parks Resources.htm. You will use these web sites and Encarta for gathering information.

After you have gathered information on all three parks, print your note-taking grid and analyze your findings.

Look at the data on visitors, miles of trails, and July temperatures on the Park Resources.htm page.

Make your decision on which park to recommend.

Start Microsoft Excel. Open the file named Park Data.xls. Enter the data for temperature, visitors, OR trails in the spreadsheet and create a chart. Be sure to choose "As a new sheet" in Step 4 of the chart wizard. You will use the chart when you prepare your PowerPoint presentation.
Start PowerPoint and open the Parks.ppt file. Begin work on your presentation. Enter the information requested on each slide.

Tips for PowerPoint pages

To put a chart on a PowerPoint slide:

Go to the chart you created in step 6 above.
Double-click on the title and enlarge the font size to 22. Do the same with the park names.
Select the entire chart by clicking once in the white area. You should see little black handles appear.
Click Edit/Copy.
Go to PowerPoint and click Edit/Paste on the appropriate slide

To copy a picture from a web page:

Right click on the picture you want to copy.
Select Copy.
Go to the PowerPoint slide and click Edit/Paste.
Resize if necessary. (Hint: hold "Shift" while you resize.)

To copy a picture from Encarta:

Display the picture in large format (click "Show It").
Click Edit/Copy.
Go to the PowerPoint slide and click Edit/Paste.
Resize if necessary.

You need to complete the task by lunch break. After lunch, you will have a few minutes to practice your presentation before presenting it to the group.

Directions for the Assessment Coordinator (Library Media Specialist)

Part 1 - Prior to the project:

Teams Assigned to the Project

You will receive from the building Principal the names of fifth graders randomly selected from your building. These students will have been randomly placed into teams. Students who would ordinarily be exempt from standardized testing will not be included.

Inform students

Students should know that they are going to be involved in this project 1-2 days in advance. To diffuse anxiety that might develop, emphasize that this is more of a project than a test: "You have been selected to work on a technology project." Tell students that there will, however, be some rules to work with to make the

project uniform for all district 5th graders.

Project & Team Folders
Prior to the assessment, check to be sure that the "National Parks" directory is set up, as well as subdirectories labeled Team 1, Team 2, Team 3, and Team 4.

Files to use
In each team folder, put a copy of these files:

National Parks Task.doc (the scenario which describes the task)
Student Directions.doc (step-by-step directions)
Note-taking grid.doc
Parks Resources.htm (the list of Internet resources)
Parks Data.xls (the spreadsheet students will use to create a chart)

Take time to troubleshoot prior to the actual assessment day. Check the permissions in the folders. Be sure that students will be able to open files and save their work in the folders.

Make Poster
Create a schedule of the assessment day. Post it in the computer lab so that students and observers can read it easily during the project.

Print Directions

Provide each team with a print copy of

Student Directions
National Parks Task

Prepare Observation Materials
Each observer needs a copy of the Analysis Rubric and a copy of the Observation of Teamwork Skills for each team. Suggestion: provide each observer with a set of colored folders; one folder for each team. Inside the folder, staple the Analysis Rubric on one side and the Observation of Teamwork Skills on the other side. On the back of the folder, staple the Persuasiveness Rubric .

Part 2 - Introduction:
Read the scenario to the students
Unlike standardized tests, this part is not closely scripted. Students may ask lots of questions. You should guide them through the opening of the files in their team folders and clarify directions. Hand out copies of Student Directions and National Parks Task.
Go over the following rules:
1. There should be no communication between teams during the project work time.
2. The administrator will help with technical questions and directions only.
3. Student performance will be measured by their team's ability to work with each other, their ability to gather information, analyze it and then present it in a way

that persuades others.
4. Students should frequently save their work to their team folder, especially before each break and 5 minutes before final presentations are to begin.

Part 3 - Completion

Analysis of Student Performance

Observers will use the Persuasiveness Rubric to evaluate the oral and visual presentations of completed projects.

They will meet with the Library Media Specialist to discuss the results, review the presentations and average the team scores.

Assessing Student Analysis Skills on Fifth-Grade Performance Task

Directions: Each teacher should observe each group 3 times. Each time put a check in the box that best describes the group's performance.

5 - EXPERIENCED – highly capable
4 - CAPABLE – capable
3 - DEVELOPING – shows ability
2 - BEGINNING – some ability
1 - EMERGENT – little ability

Observation #. . .

#1	#2	#3		**When GATHERING INFORMATION the team:**
_	_	_	(5)	Selects information with clear criteria in mind.
_	_	_	(4)	Gathers and selects information purposefully.
_	_	_	(3)	Shows ability to gather and select information.
_	_	_	(2)	Is generally on track gathering information.
_	_	_	(1)	Wanders off track and wastes time

#1	#2	#3		**When ORGANIZING INFORMATION the team:**
_	_	_	(5)	Organizes information in a logically consistent and thoughtful manner.
_	_	_	(4)	Organizes information in a logical manner.
_	_	_	(3)	Is able to organize information.
_	_	_	(2)	Shows some skill approaching the problem in a logical manner.
_	_	_	(1)	Shows little skill approaching the problem in a logical manner.

#1	#2	#3		**When USING INFORMATION the team:**
_			(5)	Shows high level of skill in drawing conclusions from information.
_	_	_	(4)	Draws conclusions from information.
_	_	_	(3)	Seems unclear about how to use information to reach a conclusion.
_	_	_	(2)	Demonstrates some purpose for data gathering.
_	_	_	(1)	Demonstrates little purpose for data gathering.

#1	#2	#3		**When THINKING ABOUT INFORMATION the team:**
_	_	_	(5)	Clearly demonstrates divergent thinking and works toward insight level.
_	_	_	(4)	Uses some divergent thinking in their approach.
_	_	_	(3)	Shows little divergent thinking.
_	_	_	(2)	Shows virtually no divergent thinking.

_ _ _ (1) Exhibits no creative or divergent thinking.

NOTES:
Obs. #1

Obs. #2

Obs. #3

TEAM _____
Analysis Average_____

DATE_____ **Persuasion Rubric** TEAM_____

Assessing Student Persuasion Skills on Fifth-Grade Performance Task

Directions: Use this rubric for observation of final presentation only. Rate this team on the scale provided (from 5 to 1) in each area using the descriptors given.

5 = experienced 4 = capable 3 = developing 2 = beginning 1 = emergent

_____ **Organization**

5- organizes and presents its findings, conclusions, and recommendations convincingly.
4 - presents its findings, conclusions and recommendations in an organized manner.
3 - presents findings, conclusions, and recommendations with some degree of organization.
2 - is able to place information, findings, and graphics into the presentation template but lacks
organization.
1 - is disorganized in its approach to making the presentation.

_____**Persuasiveness**

5 - makes a dramatic and compelling argument.
4 - makes a credible effort to persuade the audience.
3 - shows some evidence of persuasion.
2 - shows little evidence of persuasion.
1 - is not at all persuasive in presentation.

_____ **Teamwork**

5 - works as a cohesive unit to make the presentation.
4 - works as a group to make the presentation.
3 - works together to make the presentation.
2 - shows a limited ability to work together to make the presentation.
1 - is unable to work together to make the presentation.

_____ **Audience involvement**

5 - dramatically appeals to and engages their audience.
4 - actively engages the audience in the presentation.
3 - has little interaction with the audience.
2 - has no interaction with the audience.
1 -seems fearful or nervous, avoiding interaction with audience.

_____ **Effective use of technology**

5 - uses technology as a highly effective tool.

4 - uses technology to enhance the message.
3 - uses technology to some extent to demonstrate the group's position.
2 - does not use technology in a persuasive manner.
1 - shows lack of basic technology skills.

Observer Notes:

TEAM _____
Persuasion Average _____

Observation of Teamwork Skills

DATE_____ TEAM _____

Assessing Student Teamwork Skills on Fifth-Grade Performance Task

Directions: Observe each group three times for three minutes per observation. Rate the team in each of the following teamwork skill areas.
5 = strong skills in this area
4
3 = some evidence of this teamwork skill
2
1 = little or no evidence of this teamwork skill

Obs. 1 Obs. 2 Obs. 3
___ ___ ___Listening: You observe the students... Avg. _____
. Actively listening to each other.
. Piggybacking on each other's ideas.
___ ___ ___Questioning: You observe the students... Avg. _____
. Questioning each other
. Interacting, discussing, and posing questions to all members of the team.
___ ___ ___Persuading: You observe students... Avg. _____
. Using persuasion.
. Exchanging, defending and rethinking ideas.
___ ___ ___Respecting: You observe the students...Avg. _____
. Showing respect for the opinions of others.
. Encouraging and supporting the ideas and efforts of others.
___ ___ ___Helping: You observe the students helping each other. Avg. _____
___ ___ ___Participating: You observe each student... Avg. _____
. Participating
. Contributing to the project.
Notes:
Obs. 1
Obs. 2
TEAM _____
Obs. 3 Observation Skills Avg. _____
Westwood Community School District 61 www.bham.wednet.edu

APPENDIX D Self-Assessment of Technology Support Capability Based on the ISTE Technology Standards

Equipment Standards

Standard OS
The standard network operating system is Microsoft Windows 2003. Workstations are predominantly Microsoft Windows XP. There are no plans to retrofit the older workstations to VISTA and there are no current plans to migrate existing Windows machines to VISTA. All computers purchased this fiscal year will be ordered and configured with Windows VISTA.

Platform
The district standard is an IBM compatible PC with detailed specifications for hardware configuration. Few exceptions are permitted and then only with detailed justification as to why a requirement cannot be fulfilled using a standard PC. The Cyber High School uses the MAC platform for compatibility with the European model.

Application Software Standard
A standard is in place and enforced for business applications software (Microsoft Office XP Professional). Educational support software and curriculum related software are less standard across the district due to building based decisions concerning this type of software and the lack of a comprehensive and effective central district review and approval policy.

Brand Selection
The district procures computer systems yearly from a single tier-one manufacturer and vendor based on a competitively awarded contract.

Cycling of Equipment
The district has implemented a continuing program to refresh technology. The lifecycle for computer systems is established at five years causing about 100 computers per year to be purchased as replacements for obsolete systems. Approximately 100 used computer systems were donated to the District during the 2008-2009 school year. Due to financial constraints, new computers were not acquired.

Model Selection
Computer purchases are restricted to the models currently available through the vendor. The contract requires the vendor to meet minimum bid specifications at or below the bid price. This ensures that technology advances are passed on to the district as the manufacturer's product line evolves. Minor hardware changes are allowed, but over 95% of the computers ordered are the basic system configuration.

Peripheral Standards
Few formal standards have been set for peripherals, mainly due to the dynamic nature of the industry and volatility across model lines. A defacto standard has been established for laser and deskjet printers, but most other peripheral purchases are ad-hoc and based on current market price and availability. The intent is to migrate to centralized printing, and to eliminate the use of costly ink jet printers in the District. Potential purchasers are not provided a list of 'approved' equipment from which to make their selections.

Surplus Practice - Integrated
As computer systems are replaced under the technology refresh program, they are made available for use as hot swap systems in the maintenance stream, offered to buildings as no- fix systems for use until they fail, or are used as a source of repair parts for similar obsolete systems still in use. Computers are not surplussed simply as a function of age. Other technology equipment is continued in use so long as it functions. When a failure occurs a decision to replace or repair is based on cost and/or reparability.

Warranties
All computer systems, including notebooks and servers, are covered by a three-year on-site warranty. Response times are established for warranty repairs, and penalties are provided for failure to meet these standards. Peripheral equipment is subject to standard manufacturer's warranty and can vary between 30 days and one year. Additional warranty coverage for peripheral equipment is generally not purchased except in exceptional circumstances where equipment is deemed mission critical.

Donated Equipment
Only equipment, which meets current system specifications, is accepted for donation. Offers of older or non-standard systems are referred to other local agencies that may find them useful. Cash donations are always gratefully accepted, though rarely offered. It has been our experience that the cost incurred in bringing donated equipment up to network standards and then maintaining the system in an operational state is an avoidable expense and resource burden.

Granted Equipment
The district has been fortunate to be a participant in several major grants providing new technology for select classrooms and individuals. However, recent grant awards have resulted in an influx of non-standard equipment which places an added burden on the technical support staff in setting up their configuration for use on the district network. An additional burden results from having to deal with a variety of manufacturer's technical support agencies for warranty repairs. The district technology team is rarely, if ever, consulted by granting agencies prior to issue of granted equipment.

Staffing and Processes

Escalation Process for Issues

Escalation of most issues involving technology support follows an informal path more or less along traditional lines of authority and responsibility. Support issues which are not dealt with in a timely manner as perceived by the customer are generally escalated to the next higher level of supervision in the chain by either a phone call or e-mail. If that contact doesn't produce desired results, the next level up in the chain of supervision and accountability is contacted. This can result in expedited action, but also can disrupt normal workflow processes and cause a breakdown of prioritizations when viewed from a district perspective. There is no effective process to ensure that lower priority issues are dealt with in a consistent and timely manner when higher priority issues are given precedence.

HelpDesk

The computer services department operates a helpdesk to provide immediate response to questions and problems from staff. Most issues are software related and technical support is available for standard office applications, operating systems, and business related software such as fiscal and student information systems. Calls are answered by a knowledgeable person able to provide quality technical support or in the event of a hardware problem is in direct contact with supervisors and field technicians.

Software Support Protocols and Standards

The operating systems, personal productivity software and business systems are well documented and standardized across the district. The recent involuntary introduction of Microsoft Office 2000 Professional on TLP systems has resulted in an unplanned departure from the standard. Educational support and curriculum related software is less standardized and the district is currently in the process of developing a comprehensive list of these packages to better manage technical support for them.

Organizational Structure

The computer services department under the Director of Technology provides technical support for all hardware and most software systems. Instructional technology support is the joint responsibility of the Director of Technology and the building Principals. These two organizations work hand in hand with close coordination and continuous communication. Field support technicians work closely with library media specialists at each school to determine workload priorities and ensure that resources are utilized effectively.

Staffing to Computer Ratio

There is one District technician to support approximately 500 computers - a staffing ratio of 500:1. This circumstance is somewhat mitigated by the fact that computers are purchased with a three year on-site warranty. However, it is exacerbated by the fact that nearly 2/3 of all computers are out of warranty and

are the sole responsibility of the district to maintain. Interns from the local Community College are often available to augment the technical support staff.

Use of On-line Knowledgebase for Self-help

The first line of support for most staff is the helpdesk. Very few staff members use the online help resources inherent in most software applications. The technical support staff has begun to accumulate and publish technical notes and tips in public folders and it is hoped that staff can be trained and motivated to search this resource and the available software help systems prior to calling for help.

Certification of Technical Staff

Minimum qualification for technical staff is Network certification during the first year of employment. There is an adequate training budget for enhancing technical staff proficiency, current technical training resources are provided, and the cost of successfully completed certification examinations is reimbursed. Advanced and highly specialized technical training is provided to maintain currency and ensure viable support for the network infrastructure.

Differentiated Job Descriptions

Field support technician are responsible for all hardware and software installation and maintenance in the District. This position provides technical support for Microsoft Exchange, virus protection systems, and SQL Server databases. The support technician is the technical resource for users of programs like Microsoft's Outlook, Word, Excel, Access and the like and provides assistance for e- mail and account management. The support technician assists users of the fiscal and student information systems as well.

Certificated Support

A certificated staff member, the library media specialist, in each school building serves as the focal point for collecting, reviewing and prioritizing support requirements within their building. They also provide some first line support for common user-related problems. They work directly with the District's support technician to ensure that maximum benefit is gained from each site support visit and that building priorities are understood and followed.

Contracted Support

The district uses contractors exclusively for large wiring projects and for support of sophisticated voice and data telecommunications equipment. Using contractors for highly skilled tasks and/or labor intensive projects such as fiber optic splicing and testing or high speed structured cabling systems saves training dollars and concentrates district resources on sustainment of the network operating environment.

Student Support

The district has no formal program to involve students in a technical support role for technology support. In order for student support to be considered, a formal curriculum program would need to exist and any support provided would need to relate directly to instructional programs. There is no interest in using ad-hoc student support or employing students as adjunct technical support staff. There is an expectation that a formal student curriculum and program will be established within the district within the next several years at which time student involvement may become a possibility.

Deployment of New Equipment

The district technical staff bears the responsibility for most equipment installation. Setup of templates for specific system configurations and unique school needs requires knowledge and understanding of district network operating parameters that building level staff do not know. During large implementations such as the recent installation of around 60 computer systems reduced available technician contact time by more than 50% over a 2-1/2 week period. The district's own technology refresh program involving replacement of up to 100 more computer systems this school year will have a similar effect but over a much longer period of time.

Professional Development

Comprehensive Staff Development Programs

Upon initial implementation of computers in schools, all staff took required coursework in using the computers and teaching with them. Since then, new staff participate in training, follow-up one-on-one tutoring Some schools build in regular in-service based on assessments, and others do not. The new Tech Standards include school expectations and will bring more comprehensive staff development mandates and strategies.

Expectations for All Staff

All teaching staff assess their own skills twice yearly, and school inventories are used by School Improvement Teams to plan school-based staff development activities. Students will take a similar assessment, plus a performance assessment. Schools use this information in planning student and staff activities for the next year.

Training for Technical Staff

The district supports basic and advanced training for the technical staff. There is a comprehensive library of reference material available, and computer based training packages, on-line tutoring, test preparation aids, and formal class training are all used to develop and sustain the skills necessary to manage and maintain a sophisticated network of computer systems. The procurement of training materials is weighted toward those types that can be used by many and which are easily and cost effectively kept current. Formal classroom training is

generally reserved for special circumstances where advanced skills are needed or there is a need for rapid spin up in a new technology area.

Troubleshooting as part of Professional Development Program
Staff acquire piecemeal troubleshooting strategies through initial training, ongoing support in the school by the library media specialist, interaction with technicians, and individual initiative. A more comprehensive approach would be beneficial.

On-line Training Opportunities
On-line training is a strong component of the training suite of materials available to the technical staff. If other on-line training opportunities are in use, they are individually chosen and obtained and are not part of a district-wide program available to all staff.

Just in Time Training
This is basically how training is conducted for new staff, new software systems, and significant upgrades to existing systems. Training conducted too soon before the subject is ready for implementation is lost time and effort. Training is conducted in phases such that staff are provided first an overview of what is about to change and then detailed and comprehensive training as implementation occurs with a high degree of on-site technical support during the first few days of use. Training is conducted in phases that are synchronized with the users needs. Refresher training is conducted for returning staff after summer break to ensure that essential functions are reinforced and any changes implemented during the break period are understood. This approach has worked very successfully in migrating from Windows 98 to Windows XP, transitioning from Netscape Mail to Microsoft Outlook, and in implementing the new student information system.

Intelligent Systems

Desktop and Software Standardization Tools (Profiles)
No Desktop standardization tools or practices are used.

Ghost or Other Imaging Systems
The district uses both hardware and software imaging systems to facilitate the installation of new systems and to quickly restore corrupt disk images for systems in the field. Configuration templates are preserved on CD-ROM prepared in the technical support shop and are immediately available to technicians as they make site visits. If necessary, an entire computer lab of thirty systems can be re-imaged in under an hour if sufficient care has been taken to ensure standardization requirements have been enforced for the system configuration.

Trouble Ticketing System

An electronic locally developed trouble ticketing system is in use. Users submit problem reports, suggestions for system improvement, and to check the status of open work orders. District Technical support staff have the ability to manage work orders, generate hard copies, change status, and close work orders as repairs are completed. The current system does not provide for detailed analysis of failures, causative factors, trends, or tracking of resources (i.e., time, parts, supplies) expended in accomplishing work.

Quality Assurance and Customer Follow-up

There is a customer feedback opportunity within the work order management system, but there is no systemic commitment to incorporate it into the district culture or to seriously evaluate and implement any suggestions that are received. Most feedback comes in the form of praise from satisfied customers (verbal or e-mail) or more often as complaints from unsatisfied customers (also verbal or e-mail) soliciting escalation of their issues and problems to a higher level.

Vendor Specific Management Tools

Technicians make extensive use of the diagnostic software tools provided by the various equipment manufacturers such as Gateway GoBack, Timbuktu, and Lan Manager. HP Open View, Network Associates hardware and software network diagnostic systems, Fluke Lan Meter and diagnostics are a few of the third party tools that are used to supplement the basic Windows 2000 features such as Network Monitor and Performance Monitor.

Network Sniffing Tools

No Network sniffing tools are available for technician use.

On-line Knowledge Base

The technical staff continually uses Microsoft Knowledgebase and a number of other such forums as an on-line resource for trouble diagnosis and problem solving.

APPENDIX E NETWORK SERVICES ORGANIZATION, PROCEDURES, PLANS

NETWORK SERVICES

ORGANIZATION

The Network Technical, together with the designated building support personnel are responsible for ensuring that support services are provided in a timely fashion and in a manner responsive to the needs of individual sites as well as the district as a whole. The Network Technician is responsible for performing preventive and corrective maintenance of district computer and telecommunications systems, software, and the entire network infrastructure. The Network Technician will schedule his site visits in advance with the site Meida Specialist, follow established visit schedules, check in and out of buildings through the administrative offices, observe site or program assigned priorities, and conduct his activities in a courteous and professional manner.

EMERGENCY SERVICE REQUESTS

The Network Technician assigned support responsibility for a particular district site is also assigned the responsibility for handling emergency calls from that site. Emergency response duties are in addition to the workload associated with the technician's regularly scheduled site visits. The Network Technician is provided a digital pager which alerts when calls are delayed from the HELP line emergency telephone number. The technician answers the page, listens to the recorded voice mail message, evaluates the reported condition, decides upon a course of action, and responds to the site coordinator.

Every effort will be made to resolve emergency conditions immediately. This means that the Network Technician may have to cease activities at the regularly supported site and travel to the site calling in the emergency. It may not be possible to provide alternative coverage to the regularly supported site until the next scheduled maintenance visit. The potential for a site to receive less than its allocated share of technical assistance is directly proportional to the number of emergency calls which must be handled. While it is essential to maintain the capability to respond to emergency conditions, this is a capability that must be used judiciously due to the impact on regularly scheduled maintenance activities.

Therefore, in order to assist site coordinators to identify conditions that qualify as true emergencies justifying an emergency call , the following guidelines apply:

- Any system functioning as a network server is non-operational.
- An entire telephone system is non-operational.
- An entire voice mail system is non-operational.